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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,805	01/26/2004	Hironori Kakiuchi	890050.457	9756

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/764,805	Applicant(s) KAKIUCHI ET AL.	
	Examiner Martin J. Angebranndt	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/29/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. The proper terminal disclaimer has obviated the double patenting rejection. Response the arguments of the applicant are presented after the first rejection to which they are directed.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1-3,5-7,9-13,15-17 and 19 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Aoshima et al. EP 1351230.

Aoshima et al. EP 1351230 in working example 11 teaches a polycarbonate substrate coated with a 100 nm Ag reflective layer, a 28 nm ZnS-SiO₂ layer, a 5 nm CuAl recording layer, a 5 nm Si recording layer, a 22 nm ZnS-SiO₂ layer and a 100 micron UV curable resin. [0156-0157]. The amounts of Al are described in table 4 and include 5,9,17,and 27 % [0167]. The

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media are used with a 405 nm laser [0136]. The Si recording layer can be Ge, Sn, Mg, In, Zn, Bi, or Al (abstract).

The applicant argues that the priority date of the instant application predates the publication date of the reference. The applicant also states that translations will be filed in due course. **The examiner agrees that the applicant has a basis for priority before the reference publication date, but notes that the certified translation of the priority document 2003-019170 is not yet of record and so the applicant is not yet entitled to that date and so the rejection stands. The examiner notes that the documents identified by the applicant for translation are not priority documents for this application.**

5. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. EP 1351230.

It would have been obvious to modify the cited examples by using other recording layers in place of the Si recording layer, such as be Ge, Sn, Mg, In, Zn, Bi, or Al based upon the disclosure of equivalence and direction in the abstract. Further, it would have been obvious to modify the resulting media by using 20-25% Al in the Cu-Al layer with a reasonable expectation forming a useful optical recording medium of based upon the direction to amounts of 5-45%.

The rejection stands for the reasons above as no further arguments were raised by the applicant.

6. Claim 1-3,5-7,9-13,15-17 and 19 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Aoshima et al. '551.

Aoshima et al. '551 in working example 11 teaches a polycarbonate substrate coated with a 100 nm Ag reflective layer, a 28 nm ZnS-SiO₂ layer, a 5 nm CuAl recording layer, a 5 nm Si

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recording layer, a 22 nm ZnS-SiO₂ layer and a 100 micron UV curable resin. [0186-0188]. The amounts of Al are described in table 4 and include 5,9,17,and 27 % [0199]. The media are used with a 405 nm laser [0159]. The Si recording layer can be Ge, Sn, Mg, In, Zn, Bi, or Al (abstract).

The applicant argues that the priority date of the instant application predates the publication date of the reference. The applicant also states that translations will be filed in due course. **The examiner agrees that the applicant has a basis for priority before the reference publication date, but notes that the certified translation of the priority document 2003-019170 is not yet of record and so the applicant is not yet entitled to that date and so the rejection stands.**

7. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoshima et al. '551.

It would have been obvious to modify the cited examples by using other recording layers in place of the Si recording layer, such as be Ge, Sn, Mg, In, Zn, Bi, or Al based upon the disclosure of equivalence and direction in the abstract. Further, it would have been obvious to modify the resulting media by using 20-25% Al in the Cu-Al layer with a reasonable expectation forming a useful optical recording medium of based upon the direction to amounts of 5-45%.

The rejection stands for the reasons above as no further arguments were raised by the applicant.

8. Claim 1-19 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Mishima et al. '016.

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Example 1 describes a polycarbonate with a 100 nm AgPdCu reflective layer, a 39 nm ZnS-SiO₂ layer, a 5 nm CuAlAu (Al 23% and Au 13%) recording layer, a 5 nm Si recording layer, a 20 nm ZnS-SiO₂ layer and a 85 micron UV curable resin. [0188-0199]. The media are used with a 405 nm laser [0199].

The applicant argues that the priority date of the instant application predates the publication date of the reference. The applicant also states that translations will be filed in due course. **The examiner agrees that the applicant has a basis for priority before the reference publication date, but notes that the certified translation of the priority document 2003-019170 is not yet of record and so the applicant is not yet entitled to that date and so the rejection stands.**

9. Claim 1-19 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Inuo et al. '907.

Example 3 describes a polycarbonate with a 100 nm Ag reflective layer, a 17 nm TiO-N layer, a 5 nm CuAlAu (Al 23% and Au 13%) recording layer, a 5 nm Si recording layer, a 17 nm TiO-N layer and a 85 micron UV curable resin. [0207-0215]. The media are used with a 405 nm laser [0115]. The Si recording layer can be Ge, Sn, Mg, In, Zn, Bi, or Al [0029].

The rejection stands for the reasons above as no further arguments were raised by the applicant.

10. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inuo et al. '907.

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It would have been obvious to modify the cited examples by using other recording layers in place of the Si recording layer, such as be Ge, Sn, Mg, In, Zn, Bi, or Al based upon the disclosure of equivalence and direction in the abstract.

The applicant argues that the priority date of the instant application predates the publication date of the reference. The applicant also states that translations will be filed in due course. **The examiner agrees that the applicant has a basis for priority before the reference publication date, but notes that the certified translation of the priority document 2003-019170 is not yet of record and so the applicant is not yet entitled to that date and so the rejection stands.**

11. Claims 1-8,10-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Xu et al. CN 1330368 or Shuy et al. '160, in view of either of Yoshida et al. JP 10-143919 or Aratani et al. EP 1122723.

Xu et al. CN 1330368 teaches a transparent layer of Ge, Si, GaP, InP, GaAs, InAs, ZnSb, TiO₂, Sb-Zn oxide as a transparent layer (30) and reflective layer (40) may be Ag, Al, Au, Pt, Cu, Sn, Ir, Ta and alloys and/or combinations thereof. (abstract). The transparent layer may be 5-500 nm thick (4/7-12) and the reflective layer may be 1-500 nm. (4/13-20). The example uses silicon and gold as the materials. In figure 1A, the provision of thermal manipulation layers (dielectric layers) is disclosed and the use of protective layers is disclosed. (60). The examiner has only had a spot translation made, if the applicant has a written English translation made the examiner would appreciate a copy with the next response. (Shuy et al. '160 is not the corresponding English document, although they are similar)

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Shuy et al. '160 teaches a transparent layer of Ge, Si, GaP, InP, GaAs, InAs, ZnSb, TiO₂, Sb-Zn oxide as a transparent layer (30) in a thickness of 5-500 nm and reflective layer (40) may be Ag, Al, Au, Pt, Cu, Sn, Ir, Ta and alloys and/or combinations thereof in a thickness of 1-500 nm. [0026-0027]. The examples use silicon and gold as the materials. In figure 1A, the provision of thermal manipulation layers (dielectric layers) is disclosed and the use of protective layers is disclosed. (60).

Yoshida et al. JP 10-143919 (machine translation attached) teaches the addition of Al to Cu in amounts of 1-30% to improve the corrosion resistance [0017]. The addition of Fe, Mn, Au, Pt, Pd, Ti, Mo, Ta, Zr, V, W, etc in amounts of 0.1-10% to further improve the corrosion resistance is disclosed [0018]. Example 4 uses 20% Al. [0033].

Aratani et al. EP 1122723 teach reflective layer composition and exemplify Cu_{82.5}Al_{17.5} (table 2, page 7). The reflective films functions to allow recording [0044-0045]. Useful Cu based alloys are disclosed. [0050-0051].

It would have been obvious to one skilled in the art to modify the examples corresponding to figure 1A of **either** Xu et al. CN 1330368 or Shuy et al. '160 by using Cu alloys with less than 1-30% of Al in place of the Au layer with a reasonable expectation of forming a useful alloying optical recording medium based upon the disclosure of equivalence of the reflective layers and further it would have been obvious modify the result by using other disclosed transparent layer materials, such as InP, ZnSb, InAs or Ge in place of the Si used in the example with a reasonable expectation of forming a useful alloying optical recording to improve the stability of the unrecorded media by improving their corrosion resistance as taught by

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Yoshida et al. JP 10-143919, or Aratani et al. EP 1122723, noting that the use of Au, Cu, Al and alloys thereof is specifically taught by Xu et al. CN 1330368 or Shuy et al. '160.

The applicant fails to appreciate that the second recording layer (Cu) is a reflective layer in the parlance of **either** Xu et al. CN 1330368 or Shuy et al. '160 and that the first recording layer is the transparent layer in the language of their disclosure. The benefits of preventing corrosion as discussed in the secondary references would be expected to be realized, corrosion being recognized as the oxidation of a metal (think Fe to Fe oxides), irrespective of the exact mode of operation of the medium and as these references are all within the optical recording media, the references are analogous and the benefit ascribed to the addition of Al to Cu described by the applicant (increased stability at [0010] of the prepub) corresponds to this and is therefore known in the art. The issue of reduced jitter [0010] may be further investigated by the applicant to provide a showing that this is not due to reduced corrosion in the Cu-Al layer. The rejection stands.

12. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Xu et al. CN 1330368 or Shuy et al. '160, in view of either of Yoshida et al. JP 10-143919 or Aratani et al. EP 1122723, further in view of Morimoto et al. '345 and Liang et al. EP 822543.

Morimoto et al. '345 teaches that the reflective layer may be on the same side of the recording film as the substrate if topside recording is to be used and on the opposite side of the recording films from the substrate if recording is to take place through the substrate (6/42-65). The dielectric layers (metallic compounds layers) are disclosed as providing improvements in the stability and sensitivity (7/42-8/12). The prevention of direct contact with the recording layer is disclosed. (7/1-10). The protective layer can be organic materials (14/62-15/5)

Liang et al. EP 822543 teaches a protective layer (40) having a thickness of 3-10 microns (embodiment 1, 5/9-47).

It would have been obvious to one skill in the art to one skilled in the art to modify **either** Xu et al. CN 1330368 or Shuy et al. '160 by reversing the order of the two films forming the bilayer as discussed by Shigeta et al. JP 59-225992 with a reasonable expectation of the recording medium functioning based upon the disclosure of equivalence of the two orientations by Morimoto et al. '345 and to place the reflective layer on the opposite side of the recording layers from the substrate to allow recording through the polycarbonate substrate of **either** Xu et al. CN 1330368 or Shuy et al. '160 as modified by Yoshida et al. JP 10-143919 or Aratani et al. EP 1122723 based upon the disclosure of the function of the reflective layer on either side by Morimoto et al. '345 and the use a protective layer with a thickness of 10 microns based upon the direction within Liang et al. EP 822543.

The rejection stands for the reasons above as no further arguments were presented beyond those addressed above.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Martin J Angebranndt
Primary Examiner
Art/Unit 1756

03/22/2007